

PATENT SPECIFICATION



Application Date: May 27, 1926. No. 13,469 / 26.

268,178

Complete Accepted: March 31, 1927.

COMPLETE SPECIFICATION.

Improvement in Vehicle Tires.

I, MICHAEL MOTTIGUE, a citizen of the United States of America, of 905, Summit Avenue, City of New York, County of Bronx, State of New York, United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to solid vehicle tyres of the kind in which a core is built up of layers of rubber of varying hardness, arranged within an outer casing, the layers adjacent the rim being relatively hard, while those toward the tread portion of the tyre are softer and more resilient.

The object of the invention is to provide an improved form of vehicle tyre and with this object in view the invention consists in a vehicle tyre of the kind described in which the core is built up of laminations or thin layers concentrically arranged of unstretched solid rubber.

The invention also consists in a vehicle tyre of the kind described in which the core is built up of concentrically arranged laminations or thin layers of unstretched solid rubber arranged to form sections differing in elasticity.

In the drawings accompanying and forming part of this Specification, a simple commercial embodiment of the invention is illustrated but it will be understood from the description and scope of the claims following that the structure may be modified and changed in various respects without departure from the broad spirit of the invention.

Figure 1 is a broken part sectional view of the complete tyre.

Figure 2 is an enlarged cross sectional view of the same as on substantially the plane of line 2—2 of Figure 1.

Resiliency of a high order is attained in this invention by making the core of

the tyre of relatively thin laminations 3 of rubber such as that used for inner tubes and shaped to conform in a general way to the cross sectional outline of a pneumatic inner tube. This resilient core of itself is incapable of carrying the load or withstanding the wear and so is encased in a tough flexible sheath shown as made up of complementary sections 4, 5 having their free edges beveled or tapered off as at 6 and provided with beads 7 held by the intumed flanges 8 of the rim 9. This sheath may be an ordinary tire casing or shoe split in halves.

To prevent the bead portions of the casing from working toward each other and so becoming disengaged from the rim flanges, a spreader is shown at 10 in the form of a flat metal band of a width to closely fit between the beaded edges of the casing sections. This spreader is indicated as held to the rim by rivets 11 which also secure in place a series of transversely extending cleats 12 having upturned ends overlying the inclined sides of the casing sections.

Overlying the spreader and securing cleats there is shown a saddle or trough section indicated by the bracket 13 formed of semi-hard rubber and providing a seat for the live rubber layers. This seat is indicated as made up of laminations. In practice it is made up of layers of unvulcanized rubber compounded so on vulcanizing it will become semi-hard.

On the seat so provided are a group of laminations indicated by bracket 14 of resilient rubber and on top of the latter are shown another group at 15 of very soft or extra resilient rubber laminations.

A tread or outer casing 16 is shown as extending over and about the casing sections 4, 5, it being indicated as having tapered sides fitting closely over the sides of the split casing.

To afford a proper bond between the

inner semi-hard seat laminations, the two grades of resilient laminations, the split casing and the outer cover or tread casing, a cohesive body of gum 17 is
 5 filled into the casing about the edges and over the top of the rubber laminations and this acts, when the whole is vulcanized, as a resilient filler and binder
 10 integrally connecting all these parts and allowing full freedom of motion while preventing the parts from separating or rubbing one over the other. This filler in addition to its function as a binder
 15 adds also a further element of resiliency and forms a perfect seal preventing access of moisture or other harmful elements.

While the laminated core may be built up and placed on the rim as a
 20 single unit, it is customary to first engage the beads of the split casing with the rim, secure them in that relation by the spreader and transverse cleats, then apply the laminations for the semi-hard
 25 seat 13, after which the groups of resilient and extra resilient laminations are applied, then surrounded by the binder, the tread being last applied either as a complete cover or as the material to form
 30 a complete cover, the entire assembly being then placed in a mold and vulcanized. This single vulcanizing operation, by reason of the selection of material and their organization effects a
 35 hardening of the inner laminations, the welding of all the laminations together and the connection of the laminations with the split casing and outer sheath or tread.

40 The result, therefore, is a unitary tire structure having a tough durable flexible exterior and a resilient interior fully protected in all ways and providing the desired resiliency.

45 Having now particularly described and ascertained the nature of my said

invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A vehicle tire of the kind described 50 in which the core is built up of laminations or thin layers concentrically arranged of unstretched solid rubber.

2. A vehicle tire of the kind described 55 in which the core is built up of concentrically arranged laminations or thin layers of unstretched solid rubber arranged to form sections differing in elasticity.

3. A vehicle tire as claimed in any of the preceding claims in which the different sections forming the core unit are 60 held together with resilient filling and binding material.

4. A vehicle tire as claimed in any of the preceding claims in which the core 65 member is arranged within a tough flexible sheath united to the core by resilient filling and binding material.

5. A vehicle tire as claimed in Claim 4, in which said sheath comprises two 70 sections extending circumferentially of the tire and spaced apart toward the median plane thereof.

6. A vehicle tire as claimed in Claim 4 or 5 in which a wear resistant tread 75 member is arranged to extend over the edges of the sheath member.

7. A vehicle tire as claimed in any of the preceding claims in which the beads 80 of the sheath member are adapted to be maintained in engagement with the intumed flanges of the tire rim by means of a spreader member adapted to be held in position on said rim intermediate said beads.

8. A vehicle tire substantially as 85 described or as illustrated with reference to the accompanying drawings.

Dated this 27th day of May, 1926.

MARKS & CLERK. 90

[This Drawing is a reproduction of the Original on a reduced scale.]

